

Student Name _____



M-Step™

Michigan Student Test of Educational Progress

4th

7th

FS

Sample Items



Grade
4

Form
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SCIENCE
Spring 2015

**MICHIGAN STATE BOARD OF EDUCATION
STATEMENT OF ASSURANCE OF COMPLIANCE WITH FEDERAL LAW**

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The sample items included in this set can be used by students and teachers to become familiar with the kinds of items students will encounter on the paper/pencil summative assessments. The sample items demonstrate the rigor of Michigan's academic content standards. They are not to be interpreted as indicative of the focus of the M-STEP assessments; they are simply a collection of item samples. Every standard is not included in this sample set.

PART X

DIRECTIONS:

In this part, you will answer multiple-choice science questions. Some questions will ask you to read a passage, table, or other science-related information. Use that information with what you know to answer the question.

You must mark all of your answers in your **Answer Document** with a No. 2 pencil. You may underline, circle, or write in this test booklet to help you, but nothing marked in this test booklet will be scored.

Mark only one answer for each question. Completely fill in the corresponding circle on your **Answer Document**. If you erase an answer, be sure to erase completely. Remember that if you skip a question in the test booklet, you need to skip the answer space for that question on the **Answer Document**. If you are not sure of an answer, mark your **best** choice.

A sample question is provided for you below.

Sample Multiple-Choice Question:

Pill bugs can often be found underneath rocks and rotting logs. When exposed to light, they immediately try to find a dark place to hide. This reaction by the pill bugs is a result of

- A** migration.
- B** feeding behavior.
- C** energy requirements.
- D** changing environmental conditions.

For this sample question, the correct answer is **D**. Circle **D** is filled in for the sample question on your **Answer Document**.

Once you have reached the word **STOP** in your test booklet, do **NOT** go on to the next page. If you finish early, you may go back and check your work. Check to make sure that you have answered every question. Do **NOT** look at any other part of the test.

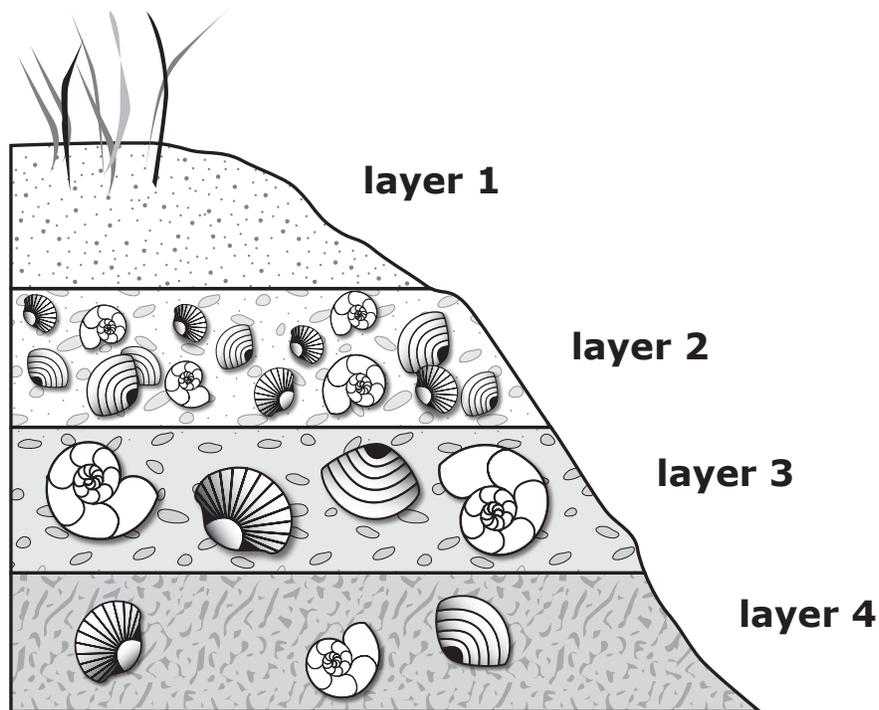
WAIT 

- 1 Coyotes have good eyesight, hearing, and sense of smell. How do all of these *best* help a coyote to live in its environment?
- A They help a coyote to stay warm.
 - B They help a coyote move.
 - C They help a coyote hunt its prey.
 - D They help a coyote eat its food.
- 2 Which of the following properties can be used to classify the coins into 5 groups?



- A size
- B shape
- C flexibility
- D temperature

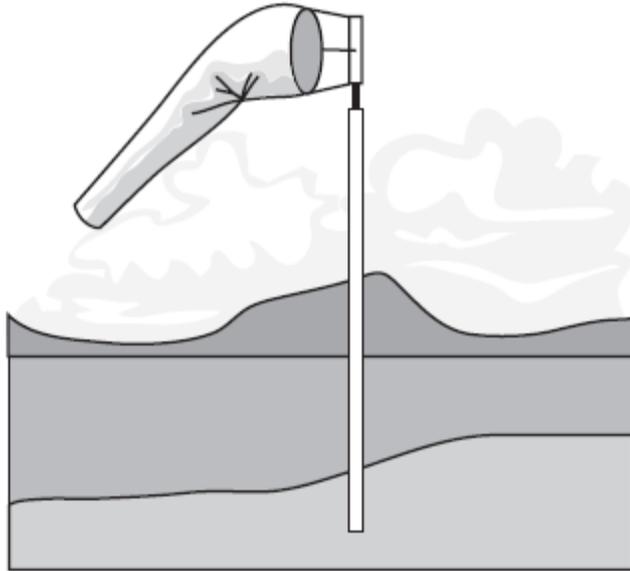
- 3 Which structures would an animal use to catch and hold another animal for food?
- A shiny scales
 - B sharp claws
 - C large horns
 - D thin quills
- 4 The drawing shows four rock layers.



Which layer *most likely* contains the oldest fossils?

- A layer 1, because it is a sandstone
- B layer 2, because it has the most fossils
- C layer 3, because its fossils are largest
- D layer 4, because it is at the very bottom

- 5 Use the drawing below and your knowledge of science to answer the question.

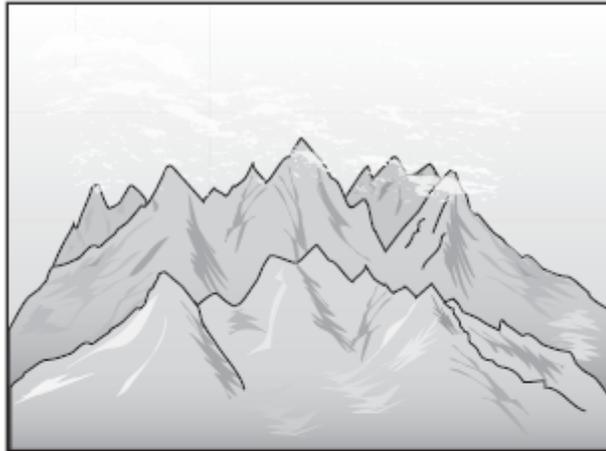


Which weather element is measured by the tool shown above?

- A average rainfall
- B air temperature
- C cloud cover
- D wind direction

- 6** In the morning, a student observed snow on the ground and decided to wear a jacket. What did the student use to make this decision?
- A** technology
 - B** an opinion
 - C** evidence
 - D** a measurement
- 7** Wolves eat deer. What type of energy do wolves receive from deer?
- A** light energy
 - B** sound energy
 - C** food energy
 - D** electrical energy
- 8** Vibrations from a thick rubber band make a low-pitched sound. The vibrations from a thin rubber band make a high-pitched sound. This is *most likely* because the thin rubber band
- A** moves faster.
 - B** moves slower.
 - C** is shorter.
 - D** is longer.

- 9 Use the drawing and your knowledge of science to answer the question.



What *most likely* caused the surface of these mountains to change over time?

- A Sunlight heated the surface and the rocks cracked.
- B Rocks were slowly broken down and eroded.
- C Seasons have gotten warmer over the past several years.
- D Ocean waves crashed against the surface in the distant past.

- 10** Students at a school wanted to learn how much paper was recycled every week. The students counted the pieces of paper recycled in each grade. The totals are listed in the data table.

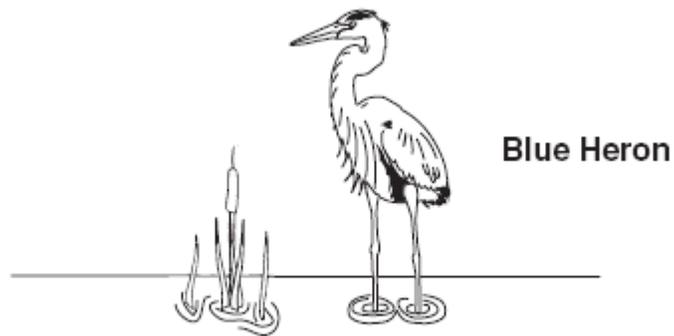
Grade	Number of Pieces of Paper
1	1,255
2	1,569
3	889
4	1,135
5	631

What is the *best* conclusion to draw from the data collected?

- A** First-grade students recycled the most amount of paper.
- B** Fourth-grade students recycled the least amount of paper.
- C** There is a decrease from third to fourth grade in the amount of paper recycled.
- D** There is an increase from first to second grade in the amount of paper recycled.

- 11** Michigan trees are used for many things, including paper for school classrooms. Julie has been asked by her teacher to come up with a way for the school to help save trees. Which of these is the *best* way to save trees?
- A** Find new uses for paper products.
 - B** Replace plastic products with paper products.
 - C** Set out bins to recycle paper.
 - D** Use paper products that are less expensive.
- 12** Which part of a food chain describes a tree?
- A** a consumer
 - B** a decomposer
 - C** a predator
 - D** a producer
- 13** A student placed an insect into a container. Which tool should the student use to see the insect better?
- A** a meter stick
 - B** a thermometer
 - C** a telescope
 - D** a hand lens

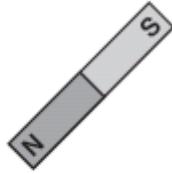
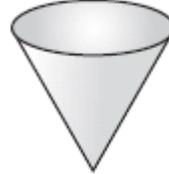
- 14** Blue herons can often be seen in shallow water such as marshes, ponds, and streams. They feed on fish, frogs, and other small animals.



Which characteristic *best* helps a blue heron to find food?

- A** thick feathers
- B** long beak
- C** strong wings
- D** light color

- 15** A student has a mixture of sand, rocks, and iron shavings. He wants to separate the mixture into three piles: sand, rocks, and iron shavings.

**Sieve****Magnet****Filter paper****Hand lens**

Which tools would *best* help to separate the mixture into the three piles?

- A** hand lens and filter paper
 - B** hand lens and sieve
 - C** magnet and filter paper
 - D** magnet and sieve
- 16** What is the main function of the roots of a corn plant?
- A** absorbing sunlight for the plant
 - B** taking in water for the plant
 - C** attracting insects to pollinate the plant
 - D** producing seeds to grow new plants

17 Which action would *best* protect the wildlife and environment near a farm growing corn?

- A** Use a strong insecticide to remove insects from the cornfield.
- B** Eliminate all organisms that might feed on the corn plants.
- C** Keep the fertilizer from the cornfield from washing into the ponds.
- D** Remove solid from the fields after the corn is harvested.

18 Which of the following is an example of correctly using a scientific tool?

- A** A scale can be used to measure the length of pond snails.
- B** A graduated cylinder can be used to collect pond snails.
- C** A hand lens can be used to observe how pond snails move.
- D** A microscope can be used to measure the weight of a pond snail.

19 A student made a list.

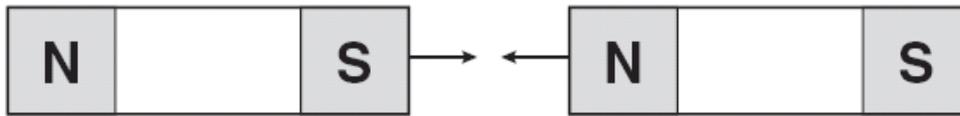
- give old clothes to younger sister
- refill empty water bottles
- start bringing a lunch box to school

Which types of conservation is the student practicing?

- A** reduce and recycle
- B** reuse and reduce
- C** reduce and renewal
- D** reuse and recycle

- 20** Thunderstorms often release large amounts of rain in a very short time. Which path would the rainwater falling on a farm *most likely* take?
- A** stream, land, ocean, river
 - B** land, river, ocean, stream
 - C** stream, river, ocean, land
 - D** land, stream, river, ocean
- 21** The Sun is about 400 times larger than Earth’s moon. However, the Sun and a full moon appear to be about the same size in the sky. Which statement *best* explains the reason for this observation?
- A** The Sun is farther away than the moon.
 - B** The moon is brighter than the Sun.
 - C** As the moon orbits Earth, it gets closer to Earth.
 - D** As Earth rotates, it gets closer to the Sun.
- 22** Students are designing an electrical circuit. Which material could be used to conduct electricity in the circuit?
- A** metal foil
 - B** glass tube
 - C** rubber band
 - D** plastic straw

23 Two magnets are shown.



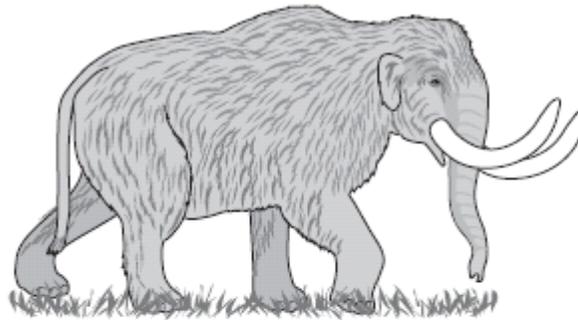
What will happen when the two magnets are moved closer together?

- A** Magnetic force will push the magnets apart.
- B** Gravitational force will pull the magnets together.
- C** Gravitational force will push the magnets apart.
- D** Magnetic force will pull the magnets together.

24 For a shadow to be made, it must have

- A** a window, an object, and a blocked path.
- B** a light source, a window, and an object.
- C** a light source, an object, and a blocked path.
- D** a shaded tree, a light source, and an object.

25 The fossils of many mastodons have been discovered in Michigan.



Mastodon

The fact that so many mastodon fossils have been found but no living mastodons have been found anywhere is evidence that mastodons are

- A** threatened.
- B** endangered.
- C** extinct.
- D** protected.

26 Which of the following are *most likely* renewable resources?

- A** coal and oil
- B** wool and coal
- C** trees and wool
- D** oil and trees

Item Number	Correct Answer	Standard/ Benchmark	Description
1	C	L.EV.03.12	Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (sharp teeth, claws, color, body coverings).
2	A	P.PM.02.12	Describe objects and substances according to their properties (color, size, shape, texture, hardness, liquid or solid, sinking or floating).
3	B	L.OL.03.32	Identify and compare structures in animals used for controlling body temperature, support, movement, food-getting, and protection (for example: fur, wings, teeth, scales).
4	D	E.ST.04.31	Explain how fossils provide evidence of the history of the Earth.
5	D	S.IP.04.14	Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).
6	C	S.RS.04.14	Use data/samples as evidence to separate fact from opinion.
7	C	L.OL.04.16	Determine that animals require air, water, and a source of energy and building material for growth and repair.
8	A	P.EN.03.32	Distinguish the effect of fast or slow vibrations as pitch.
9	B	E.SE.03.22	Identify and describe natural causes of change in the Earth's surface (erosion, glaciers, volcanoes, landslides, and earthquakes).
10	D	S.IA.04.11	Summarize information from charts and graphs to answer scientific questions.
11	C	E.ES.03.43	Describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, renewal).
12	D	L.EC.04.11	Identify organisms as part of a food chain or food web.
13	D	S.IP.04.14	Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).

Item Number	Correct Answer	Standard/ Benchmark	Description
14	B	L.OL.03.32	Identify and compare structures in animals used for controlling body temperature, support, movement, food-getting, and protection (for example: fur, wings, teeth, scales).
15	D	S.IP.04.13	Plan and conduct simple and fair investigations.
16	B	L.OL.03.31	Describe the function of the following plant parts: flower, stem, root, and leaf.
17	C	E.ES.03.52	Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable, and non-renewable resources).
18	C	S.IP.04.14	Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).
19	B	E.ES.03.43	Describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, renewal).
20	D	E.FE.02.21	Describe how rain collects on the surface of the Earth and flows downhill into bodies of water (streams, rivers, lakes, oceans) or into the ground.
21	A	E.ST.04.12	Compare and contrast the characteristics of the sun, moon and Earth, including relative distances and abilities to support life.
22	A	P.PM.04.53	Identify objects that are good conductors or poor conductors of heat and electricity.
23	D	P.PM.04.34	Demonstrate that magnetic objects are affected by the strength of the magnet and the distance away from the magnet.
24	C	P.EN.03.21	Demonstrate that light travels in a straight path and that shadows are made by placing an object in a path of light.
25	C	E.ST.04.31	Explain how fossils provide evidence of the history of the Earth.
26	C	E.ES.03.42	Classify renewable (fresh water, fertile soil, forests) and non-renewable (fuels, metals) resources.

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